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udgivet af  
Det Kongelige Danske Videnskabernes Selskab  
Bind **23**, nr. 16

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Biol. Medd. Dan. Vid. Selsk. **23**, no. 16 (1967)

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DESCRIPTION OF SEVEN TYPE  
SPECIMENS OF FORAMINIFERA  
DESIGNATED BY D'ORBIGNY, 1826

BY

HANS JØRGEN HANSEN



København 1967  
Kommissionær: Munksgaard

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### Synopsis

Seven type specimens of foraminifera designated by D'ORBIGNY in 1826 were recently discovered in the collections of the Mineralogisk Museum, Copenhagen. They are described and illustrated. (*Textularia gibbosa*; *Fasciolites oblonga*; *Gyroidina orbicularis*; *Pararotalia bisaculeata*; *Asterigerina rosacea*; *Anomalina elegans*; *Nummulina discoidalis*.) The genus *Gyroidina* is emended.

Since D'ORBIGNY in 1826 published his work on foraminifera and illustrated some of the species by plaster models, much confusion has existed as to the proper content of the species named by him as no descriptions were given. PARKER, JONES & BRADY (1865) figured the models but no actual type specimen was described and pictured.

Recently a collection of D'ORBIGNY plaster models in the collections of the Mineralogisk Museum, Copenhagen was studied and besides 100 models 19 specimens of actual foraminifera were present giving further illustration of some of the species.

Some of the specimens were glued to small glass plates by aid of gummi arabicum and protected by another glass plate resting upon 4 small pieces of cardboard along the edges. The cardboard was labelled with a number corresponding to a number of a model. The whole arrangement was kept in place by a thin twisted copper wire.

The larger specimens were glued to pieces of cardboard without any cover.

Due to the mounting technique used by D'ORBIGNY many of the specimens were fractured. This was caused by the shrinkage of the gummi arabicum. When a fractured specimen was moistened with water in order to dissolve the glue, it was found that the fractions fell apart and the test was destroyed. When, however, the test was moistened with collodium dissolved in amylicetate and dried before the glue was dissolved in water, the fragments were kept in place. The thin film of collodium on the surface of the test was afterwards removed with a needle by carefull preparation.

Dr. Y. LE CALVEZ kindly informed me that 7 species of the 19 represented in Copenhagen are missing in the D'ORBIGNY collection in Paris.

Due to the drawing technique used at the time when the d'Orbigny models were made they are all inverted.

It has not been possible to trace the exact year when the collection arrived in the Mineralogisk Museum as it carries no registration number. The registration books of the museum do not cover the period before 1829. On one of the wooden boxes which contain the models can be read: "*Commissaires Messieurs Geoffroy StHilaire, Duméril et Latreilles (7 Novembre 1825).*" This represents as far as it has been brought to my knowledge a firm in Paris trading with fossils, minerals etc. The collection may accordingly have arrived in the Mineralogisk Museum after the 7th of November 1825 but before 1829.

The letters "MMH" and a number used in the systematic part of this paper refer to the registration code of the Mineralogical Museum of the University of Copenhagen where the material is kept.

I am greatly indebted to Dr. A. NØRVANG for specimens of *Gyroidina orbicularis* from Rimini and to Dr. Y. LE CALVEZ for information concerning the d'ORBIGNY collection in Paris. Mr. CHRISTIAN RASMUSSEN prepared the illustrations with his usual skill and care.

Order **Foraminiferida** EICHWALD, 1830

Suborder **Textulariina** DELAGE and HÉROUARD, 1896

Superfamily **Lituolacea** DE BLAINVILLE, 1825

Family **Textulariidae** EHRENBERG, 1838

Subfamily **Textulariinae** EHRENBERG, 1838

Genus **Textularia** DEFRANCE, 1824

*Textularia gibbosa* D'ORBIGNY, 1826

Pl. 1. Figs. 1 a, b.

1826. *Textularia gibbosa* D'ORBIGNY: p. 262, modèles no. 28, 2me livraison.

#### Description:

Test biserial throughout. Consisting of 8 faintly inflated chambers. Outline smooth. Initial end rounded. Cross section

broadly elliptical. Sutures faintly depressed. The angle between the sutures and the axial line is about 70°. The aperture is a low, broad slit at the base of the final chamber. The basal part of the apertural face at the ends of the aperture is somewhat projecting. Test wall apparently composed of calcareous material containing some agglutinated quartz grains with an average diameter of 10 microns. The surface of the test is rather smooth. No adventive chamber has been found.

Length: 782 microns. Width: 630 microns. Thickness: 540 microns.

Type level according to D'ORBIGNY: *Recent et fossile*.

Type locality according to D'ORBIGNY: *La mer Adriatique; Castel-Arquato*.

Remarks:

The syntype in the collection of the Mineralogisk Museum, Copenhagen is here chosen as lectotype.

Lectotype: Pl. 1. Figs. 1 a, b. MMH No. 10.313.

Suborder **Miliolina** DELAGE and HÉROUARD, 1896

Superfamily **Miliolacea** EHRENBERG, 1839

Family **Alveolinidae** EHRENBERG, 1839

Genus **Fasciolites** PARKINSON, 1811

*Fasciolites oblonga* (D'ORBIGNY, 1826)

Pl. 1. Figs. 2 a, b, c.

1826. *Alveolina oblonga* D'ORBIGNY: p. 306.

Description:

Test involut, ellipsoidal. 17 chambers in the final whorl. Septulae alternating in adjacent chambers with pro- and post-septal passages. Apertural character unknown. Basal thickening developed in the oldest chambers. Initial part regularly enrolled.

Length: 5,61 mm. Thickness: 2,54 mm.

Type level according to D'ORBIGNY: *Fossile*.

Type locality according to D'ORBIGNY: *Les environs de Soissons*.

## Remarks:

The syntype found in the collection of the Mineralogisk Museum, Copenhagen is here chosen as lectotype.

Three specimens of the species are present in our collection. Two of these have been ground for preparation of thin sections.

Lectotype: Pl. 1. Fig. 2a. MMH No. 10.317.

Figured syntype (axial section): Pl. 1. Fig. 2c. MMH No. 10.320.

Figured syntype (equatorial section): Pl. 1. Fig. 2b. MMH No. 10.321.

Superfamily **Cassidulinacea** D'ORBIGNY, 1839

Family **Anomalinidae** CUSHMAN, 1927

Subfamily **Anomalininae** CUSHMAN, 1927

Genus **Gyroidina** D'ORBIGNY, 1826

Type species: *Gyroidina orbicularis* D'ORBIGNY, 1826  
subsequent designation by CUSHMAN, 1927

## Original diagnoses:

“Test libre, trochoïde, régulier; spire tronquée, très-aplatie; côté oppose très-convexe; ouverture en fente longitudinale contre l'avant-dernier tour, mais n'occupant que la partie médiane de la loge.”

## Emended diagnoses:

Test free, trochospiral. Umbilical side involut, spiral side evolut. Umbilicus closed. Umbilical side strongly convex, spiral side less convex. Aperture a low arch placed interio-marginally on the umbilical side neither extending to the periphery nor to the umbilicus, at the base of the final chamber. Wall calcitic, perforate and granular in structure. Bilammellar septa.

## Differential diagnoses:

The genus *Gyroidina* differs from the genus *Heterolepa* in having the aperture restricted to the umbilical side, while it extends onto the spiral side in *Heterolepa*.



*Gyroidina orbicularis* D'ORBIGNY, 1826

Pl. 2. Figs. 1 a, b, c; 2 a, b, c.

1826. *Gyroidina orbicularis* D'ORBIGNY: p. 278, modèles no. 13, 1re livraison.

## Description:

Test free, trochospiral. All chambers visible on the spiral side which is somewhat convex. Umbilical side involut and strongly convex. 7 chambers in the final whorl. Sutures flush with the surface, gently curved. Periphery bluntly angled. General outline smooth. The central part of the spiral side is thickened by deposition of secondary calcite layers.

The aperture is a low arch at the base of the last formed chamber. It is confined to the lower part but not extending across the periphery or to the umbilicus. Test wall composed of granular calcite. The septa are bilamellar. The wall is perforate with an average pore diameter of 10 microns. The pores on the spiral side are slightly larger than those on the umbilical side.

Diameter: 730 microns. Thickness: 513 microns.

Type level according to D'ORBIGNY: Recent.

Type locality according to D'ORBIGNY: *La mer Adriatique, pres de Rimini.*

(Additional specimens from Rimini were kindly placed at my disposal by Dr. A. NØRVANG.)

## Remarks:

According to the morphology of *Gyroidina orbicularis* described above, the assignment of the genus *Gyroidina* to the family *Alabaminidae* must be considered incorrect.

The genus *Gyroidina* should instead be placed within the family *Anomalinidae* and close to the genus *Heterolepa*.

The syntype of *Gyroidina orbicularis* in the collection of the Mineralogisk Museum, Copenhagen is here chosen as lectotype.

Lectotype: Pl. 2. Figs. 1 a, b, c. MMH No. 10.319.

Figured specimen: Pl. 2. Figs. 2 a, b, c. MMH No. 10.318.

Superfamily **Rotaliacea** EHRENBERG, 1839

Family **Rotaliidae** EHRENBERG, 1839

Subfamily **Rotaliinae** EHRENBERG, 1839

Genus **Pararotalia** LE CALVEZ, 1949

*Pararotalia bisaculeata* (D'ORBIGNY, 1826)

Pl. 2. Figs. 3a, b, c.

1826. *Rotalia (Rotalie) bisaculeata* D'ORBIGNY: p. 273, modèles no. 15, 1re livraison.

Description:

Test umbilicoconvex. Spiral side slightly convex. Umbilical side strongly convex. Periphery angled with a serrate keel carrying on each chambers one blunt spine. All chambers visible on the spiral side. Chambers on the umbilical side inflated. Chambers on the spiral side not inflated. Sutures on the umbilical side hardly depressed near periphery, becoming more depressed towards umbilicus, radial. Sutures on the spiral side with a backward curve, hardly depressed. General outline lobate. Aperture umbilical-extraumbilical. Older apertures open into umbilicus below overhanging lips. Central part of umbilicus occupied by a rounded plug. Test wall composed of perforate, radiate calcite. Lamellar character unknown.

Diameter: 280 microns. Thickness: 63 microns.

Type level and locality unknown. According to D'ORBIGNY: *Un sable de délestage*.

Remarks:

The syntype in the Mineralogisk Museum is here chosen as lectotype.

Lectotype: Pl. 2. Figs. 3a, b, c. MMH No. 10.312.

Suborder **Rotaliina** DELAGE and HÉROUARD, 1896

Superfamily **Discorbacea** EHRENBERG, 1838

Family **Asterigerinidae** D'ORBIGNY, 1839

Genus **Asterigerina** D'ORBIGNY, 1839

*Asterigerina rosacea* (D'ORBIGNY, 1826)

Pl. 3. Figs. 1a, b, c.

1826. *Rotalia (Rotalie) rosacea* D'ORBIGNY: p. 273, modèles no. 39, 2me livraison.

## Description:

Test trochospiral, biconvex. Spiral side more convex than umbilical side. 6 chambers in the final whorl. Periphery angled with a smooth keel of clear calcite. Secondary chambers showing a rosette-like pattern on the central part of the umbilical side. Test smooth except for the area in front of the aperture which is tuberculated. The youngest foramen has an elliptical form. It is placed midway between the periphery and the umbilicus on the umbilical side. The sutures are oblique and curving on the spiral side. They are in level with the surface except for the central part of the umbilical side where they are somewhat elevated and provided with small tubercles. Lamellar character unknown. Wall calcitic, perforate and radiate in structure.

Diameter: 432 microns. Thickness: 180 microns.

Type level according to D'ORBIGNY: *Fossile*.

Type locality according to D'ORBIGNY: *Les environs de Bordeaux*.

## Remarks:

The syntype found in the Mineralogisk Museum, Copenhagen is here chosen as lectotype.

The specimen is not well preserved. The final chamber and a small area near umbilicus are missing. In spite of this there can, however, be no doubt as to the assignment of the species to the genus *Asterigerina* because of the rosette-like arrangement of the secondary chambers, the wall structure and general morphology.

Lectotype: Pl. 3. Figs. 1 a, b, c. MMH No. 10.314.

“*Anomalina*” *elegans* D'ORBIGNY, 1826

Pl. 3. Figs. 2 a, b, c.

1826. *Anomalina elegans* D'ORBIGNY: p. 282, modèles no. 42, 2me livraison.

## Description:

Test free, trochospiral. Involut on both sides, biconvex. Periphery bluntly angled. Outline smooth. Only the eight chambers of the final whorl visible. Strongest convex on the aboral side. Sutures slightly depressed between the last three chambers on

the aboral side else they are filled with clear calcite and flush with the surface which is unornamented. Sutures are gently curving on both sides. The sutures on the oral side are thickened and raised towards the central depression. The aperture is interiomarginal and continues on the least convex side below all chambers and opens into the central depression where it is covered by overhanging serrate lips. The apertural face is bluntly angled against the aboral side and imperforate in the area near the aperture. Wall calcitic, radiate and perforate. Lamellar character unknown.

Diameter: 460 microns. Thickness: 190 microns.

Type level according to D'ORBIGNY: *Fossile*.

Type locality according to D'ORBIGNY: *Aux environs de Bordeaux*.

Remarks:

The syntype in the Mineralogisk Museum, Copenhagen is here chosen as lectotype.

As only one specimen is present no thin section has been made and accordingly the lamellar character is unknown.

Due to the radial arrangement of the calcite of the wall of "*Anomalina*" *elegans* it can not be referred to the genus *Anomalina* or even to the superfamily *Cassidulinacea*. The radial wall and missing information as to the lamellar character make an assignment of this species even to superfamily impossible. According to this fact, the genus name *Anomalina* is written in quotation marks.

Lectotype: Pl. 3. Figs. 2 a, b, c. MMH No. 10.315.

"*Nummulina*" *discoidalis* D'ORBIGNY, 1826

Pl. 3. Figs. 3a, b.

1826. *Nummulina* (*Assiline*) *discoidalis* D'ORBIGNY: p. 296, modèles no. 88, 4me livraison.

Description:

Test involut, becoming evolut in the final half of the final volution. 21 chambers in the final whorl. Periphery with a broadly rounded keel. On both sides is found a rounded, elevated

and smooth umbonal disc. Sutures curving gently backwards and provided with a row of tubercles of clear calcite. The tuberculation becomes coarser on the older part of the test. Aperture unknown. Interiomarginal foramen forming a low arch with a median notch. Wall calcareous, laminated, fibrous and radiate.

Diameter: 2062 microns. Thickness: 1062 microns.

Type level according to D'ORBIGNY: *Recent*.

Type locality according to D'ORBIGNY: *La mer du Sud, à l'île de Rawack, Nouvelle-Hollande*.

Remarks:

The syntype in the Mineralogisk Museum, Copenhagen is here chosen as lectotype.

The final half of the final volution is missing on the specimen. The wall structure was studied on a grind section made on a very small fragment of the test. According to missing information concerning essential characters a safe determination to genus can not be carried out and accordingly the genus name is written in quotation marks.

Lectotype: Pl. 3. Fig. 3 a, b. MMH No. 10.316.

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## PLATES

PLATE I

Fig. 1 a, b. *Textularia gibbosa* D'ORBIGNY. Lectotype (MMH No. 10.313).  $\times 54$ .

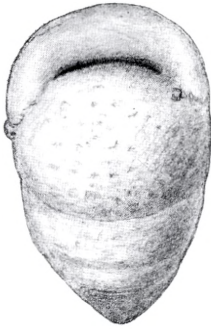
Fig. 2. *Fasciolites oblonga* (D'ORBIGNY).

a. Lectotype (MMH No. 10.317).  $\times 12,5$ .

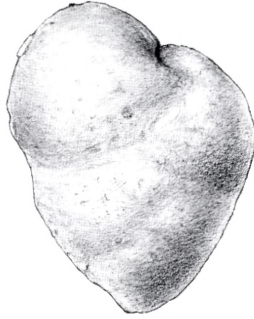
b. Syntype (equatorial section) (MMH No. 10.321).  $\times 17$ .

c. Syntype (axial section) (MMH No. 10.320).  $\times 17$ .

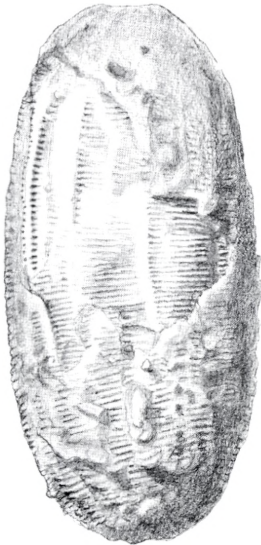




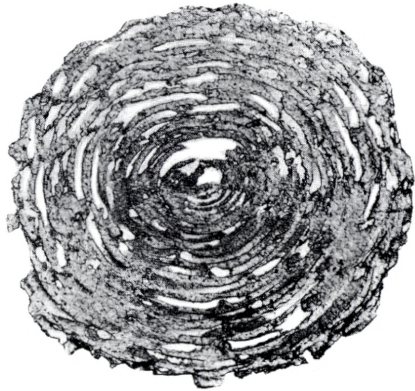
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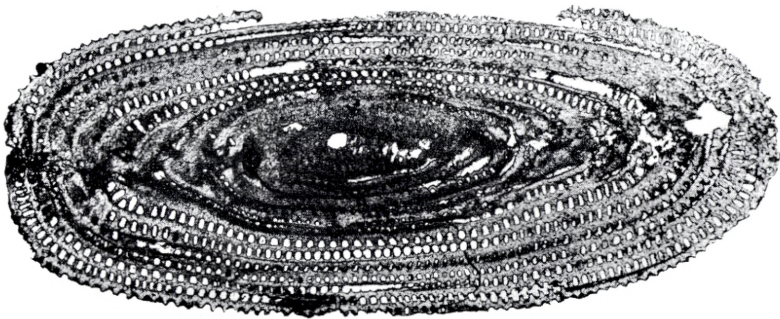
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2a



2b



2c

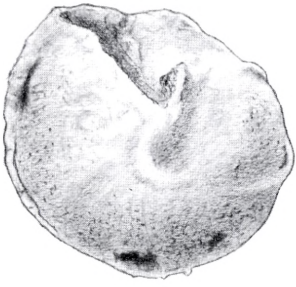
PLATE II

Fig. 1. *Gyroidina orbicularis* D'ORBIGNY. Lectotype (MMH No. 10.319). × 54.  
a. Umbilical side.  
b. Apertural view.  
c. Spiral side.

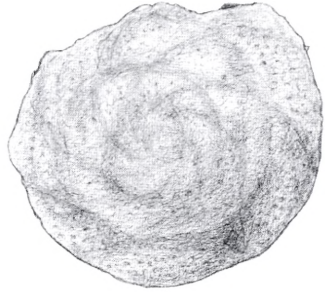
Fig. 2. *Gyroidina orbicularis* D'ORBIGNY. (MMH No. 10.318). × 54.  
a. Umbilical side.  
b. Apertural view.  
c. Spiral side.

Fig. 3. *Pararotalia bisaculeata* (D'ORBIGNY). Lectotype (MMH No. 10.312). × 128.  
a. Umbilical side.  
b. Apertural view.  
c. Spiral side.

PLATE II



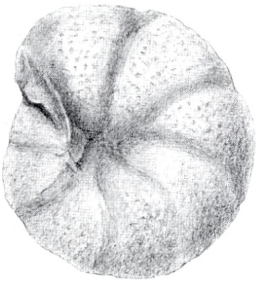
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1c



1b



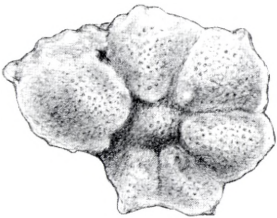
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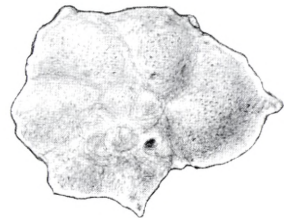
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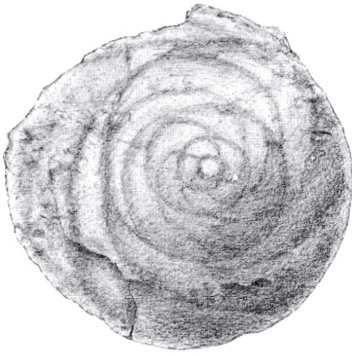
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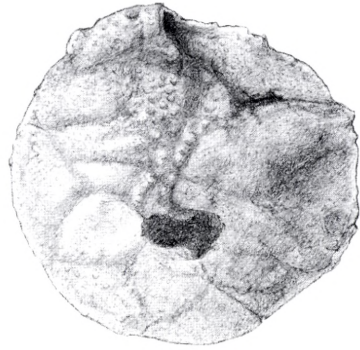
3b

PLATE III

- Fig. 1. *Asterigerina rosacea* (D'ORBIGNY). Lectotype (MMH No. 10.314).  $\times 104$ .  
a. Spiral side.  
b. Umbilical side.  
c. Apertural view.
- Fig. 2. "*Anomalina*" *elegans* D'ORBIGNY. Lectotype (MMH No. 10.315).  $\times 58$ .  
a. Oral side.  
b. Aboral side.  
c. Apertural view.
- Fig. 3. "*Nummulina*" *discoidalis* D'ORBIGNY. Lectotype (MMH No. 10.316).  $\times 27$ .  
a. Side view.  
b. Edge view.



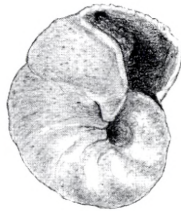
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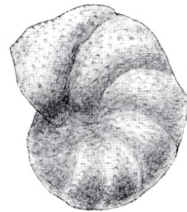
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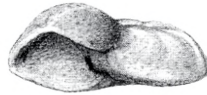
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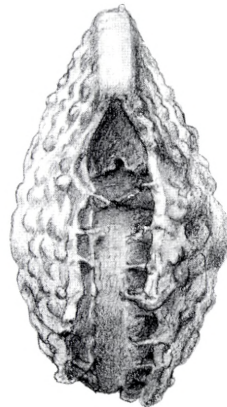
2b



2c



3a



3b



# Det Kongelige Danske Videnskabernes Selskab

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## Bind 23

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